Bracing Trussed Rafters and Roofs

Bracing in trussed rafter roofs is essential and performs specific and separate functions:

1. TEMPORARY BRACING

Temporary bracing is required during erection of the trussed rafters to ensure that the trusses are erected vertically plumb, at the correct centres and in a stable condition for the continuation of construction.

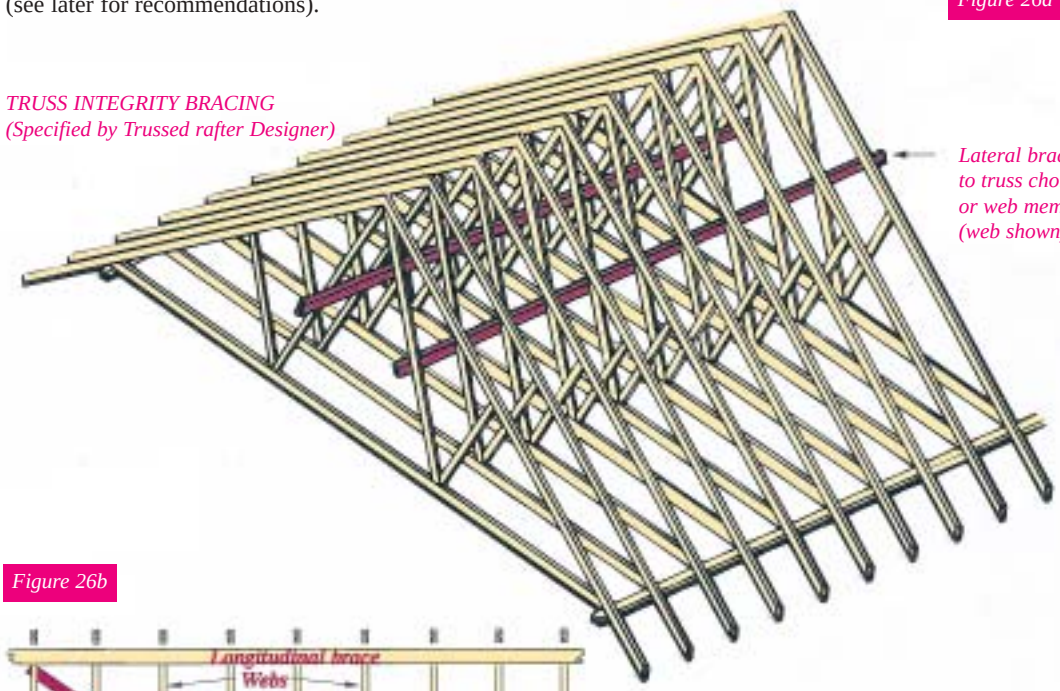
This bracing is the responsibility of the roof erector, (see later for recommendations).

2. TRUSS INTEGRITY BRACING

Bracing may be required by the trussed rafter design to prevent out-of-plane buckling of a member or members within the truss. This bracing must be provided to ensure the structural integrity of the trussed rafter. It is the responsibility of the Trussed Rafter Designer to inform the building designer if this is required.
See figure 26a, 26b and 26c.

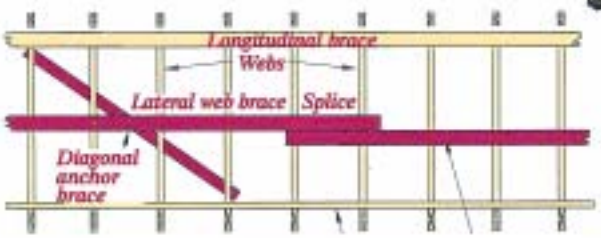
Figure 26a

TRUSS INTEGRITY BRACING
(Specified by Trussed rafter Designer)



Lateral brace to truss chord or web member (web shown)

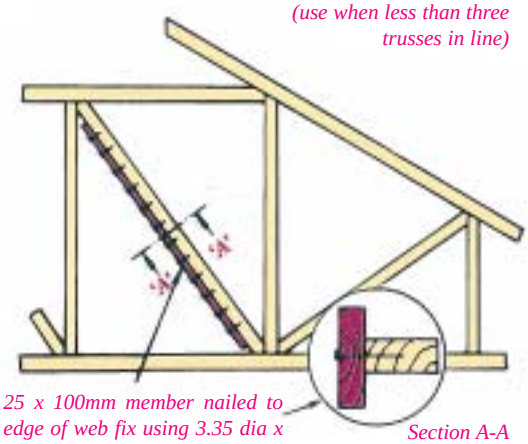
Figure 26b



LATERAL WEB BRACING
One shown (with splice) at mid point of webs. For two braces, locate at third-point of webs. Diagonal anchor braces as shown at 6m intervals. All braces 25 x 100 free of major defects and fixed with two 3.35 x 65mm galvanised nails at all cross-overs.3.

Figure 26c

ALTERNATIVE WEB STABILITY BRACE
(use when less than three trusses in line)



25 x 100mm member nailed to edge of web fix using 3.35 dia x 65mm long R/W galvanised nails, at 150mm centres.

Section A-A

3. ROOF STABILITY BRACING

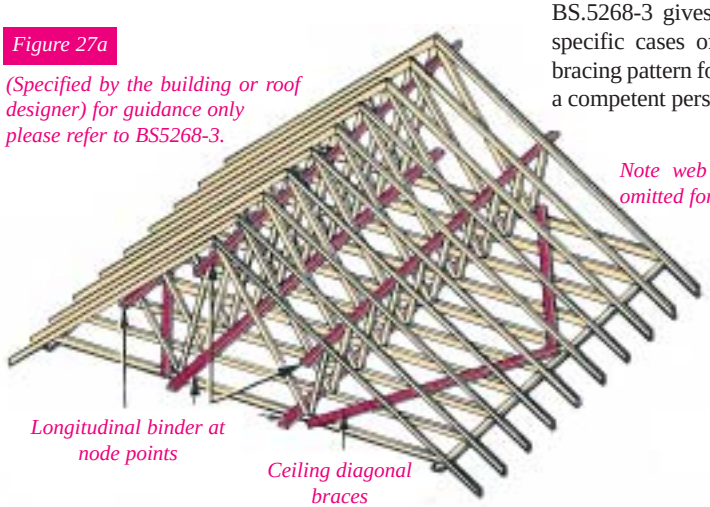
In addition to the above bracing, extra bracing will often be required to withstand external and internal wind forces on the walls and roof. This area of bracing design is the responsibility of the Building Designer (or Roof Designer if one has been appointed) and includes such areas as diagonal wind bracing, chevron bracing to internal members, longitudinal bracing at truss node points, etc.

Bracing Trussed Rafters and Roofs

BS.5268-3 gives some recommendations for certain specific cases of roofs; for other types of roof the bracing pattern for roof stability should be designed by a competent person. See figure 27a, 27b, 27c and 27d.

Figure 27a

(Specified by the building or roof designer) for guidance only please refer to BS5268-3.



Note web chevron and rafter diagonal bracing omitted for clarity, see following details.

Longitudinal binder at node points

Ceiling diagonal braces

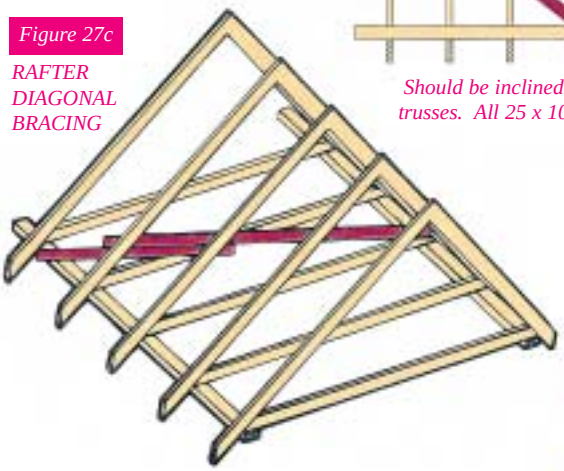
Figure 27b

WEB CHEVRON BRACING

Should be inclined at approximately 45(and each nailed to at least three trusses. All 25 x 100mm free of major defects and fixed with 3.35 x 65mm galvanised nails at all cross-overs.

Figure 27c

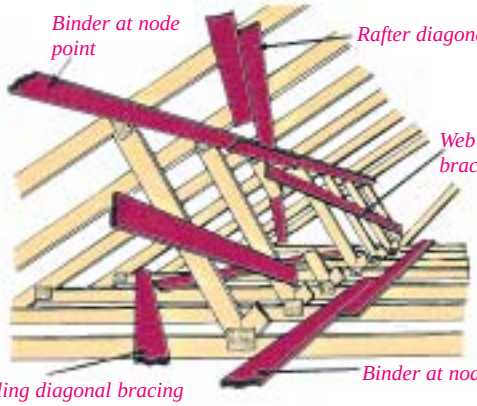
RAFTER DIAGONAL BRACING



(One only shown and spliced) webs and all other bracing omitted for clarity. Braces to be 25 x 100mm free of all major defects and fixed with two 3.35 x 65mm galvanised nails at all cross-overs including wall plate. Braces to be inclined at approximately 45(to the tiling battens and repeat continuously along the roof.

Figure 27d

INTERVAL VIEW



Binder at node point

Rafter diagonal brace

Web chevron bracing

Ceiling diagonal bracing

Binder at node point

Design responsibility

Specifiers and designers should understand that Truss integrity bracing is the responsibility of the Trussed Rafter Designer who must inform the Building Designer if such bracing is required. Whereas Roof Stability bracing (and any additional specialist bracing) is the responsibility of the Building Designer (or Roof Designer if one has been appointed). The Building Designer is responsible for detailing ALL bracing.

The Building Designer has access to information pertinent to the structure i.e. walls, and the forces being transferred from them, which the Trussed Rafter Designer cannot determine. (See also section 1.2 on Design Responsibilities).

Please refer to BS 5268-3 for further guidance on bracing of roofs for domestic situations.